**NAME OF THE WORK: Improvements To Roads And Drains At Tanisandra Dasarahalli Saraipalya And Bharathnagar And Surrounding Area In Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Si No 109,110,111. Comprehensive Development And Improvements To Roads And Drains Rachenahalli And Surrounding Area In Ward No 6&7 Byatarayanapura Sub Division Package -2 (Old Annuxure-2) Go Sl No 12and 113**

# First and Part Bill

# Quality Control Reports

## BOOK NO – 01

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# PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

| | | |
|---|---|---|
| Lab ID | : | CP-RW-2021-10-06-03 Date: 14-09-21 |
| Project Name | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| Agency | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 |
| Customer Reference | : | BBMP-EE-BTP-WO-02-2021-22 |
| Date of Receipt | : | 11-09-21 |
| Type of Mix | : | DBM (Dense Bituminous Macadam) |
| Date of test | : | 11-09-21 |

**Table 500-6 : Physical Requirements fo Coarse Aggregate for Dense Bituminous Macadam**

| Property | Test | Result | Specification | Method of Test |
|---|---|---|---|---|
| Partical Shape | Flakiness Index | 11.0 | Combined Flakiness & Elongation Index for DBM is Maximum 35% | IS:2386 Part I |
| | Elongation Index | 12.0 | | |
| Strength | Aggregate Impact Value | 18.0 | Maximum 30% | IS:2386 Part IV |
| Specific gravity | Specific gravity | 2.58 | Maximum 2.7 | IS:2386 Part III |
| Water Absorption | Water Absorption | 0.38 | Maximum 2% | IS:2386 Part III |

* The results obtained are satisfactory as per standard requirements.

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R KARTHIK RECHAN
Authorized Signatory
Quallity Manager


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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TESTS RESULTS ON STABILITY OF MIX

**Lab ID** : **CP-RW-2021-10-06-03** **Date: 14-09-21**

**Project Name** : Package-3, Includes 5 Works
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**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 11-09-21

**Type of Mix** : DBM (Dense Bituminous Mecadam)

**Date of test** : 11-09-21

**The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow**

| Sl.No | Particulars of observations | TEST 1 | TEST 2 | Secified limits as per MORTH specification table 500-11 |
|---|---|---|---|---|
| 1 | Marshal Stability at 60°C, KN | 11.29 | 11.82 | 9KN(Min) |
| 2 | Marshal flow at 60°C, mm | 3.54 | 3.87 | 2-4 |
| 3 | Percent air Voids | 4.56 | 4.17 | 3-5 |
| 4 | Percent Voids in mineral Aggregate(VMA %) | 14.54 | 14.76 | 13-15 |
| 5 | Percent Voids filled with Bitumen(VFB %) | 68.98 | 70.28 | 65-75 |
| 6 | Density, g/cc | 2.42 | 2.40 | – |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

**Lab ID** : **CP-RW-2021-10-06-03** **Date: 14-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 11-09-21

**Type of Mix** : DBM(Dense Bitumnous Macadam)

**Date of test** : 11-09-21

**Type of Binder** : 60/70

**% of Binder Used** : 5.0%

**Weight of Aggregate** : 200.0 gm

**Weight of Binder** : 10.0 gm

**Temperature of water bath** : 40°C

| No of test | Retained Stripping Percentage | Stripping Percentage | Average Retained Stripping Percentage | Secified limits as per MORTH specification table 500-8 |
|---|---|---|---|---|
| 1 | 98.0 | 2.0 | 98.2 | Minimum Retained Coating 95% |
| 2 | 98.5 | 1.5 | | |
| 3 | 98.0 | 2.0 | | |

* The results obtained are satisfactory as per standard requirements.

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## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011)

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-10-06-03** **Date: 22-09-21** |
| **Project Name** | : | Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113. **Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 |
| **Customer Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 20-09-21 |
| **Type of Mix** | : | DBM (Dense Bituminous Macadam) , Mestri Palya Main Road |
| **Date of test** | : | 20-09-21 |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 500 | 500 |
| 2 | Weight of the sample After extraction | B | 477 | 476 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 4.6 | 4.8 |
| 4 | Average percentage | % | 4.7 | |

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager



M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Lab ID : CP-RW-2021-10-06-03 Date: 22-09-21

**AFTER EXTRACTION(Trail-1)**

Weight of Sample(gm) : 477

| IS Sieve Size(mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Specification Limits as per MORTH specification Table 500-10(grading -2) |
|---|---|---|---|---|---|
| 37.5 | 0 | 0 | 0 | 100.0 | 100 |
| 26.5 | 14.4 | 14.4 | 3.02 | 97.0 | 90-100 |
| 19 | 24 | 38.4 | 8.05 | 91.9 | 71-95 |
| 13.2 | 120 | 158.4 | 33.21 | 66.8 | 56-80 |
| 4.75 | 96 | 254.4 | 53.33 | 46.7 | 38-54 |
| 2.36 | 80 | 334.4 | 70.10 | 29.9 | 28-42 |
| 0.3 | 62.4 | 396.8 | 83.19 | 16.8 | 7-21 |
| 0.075 | 52.8 | 449.6 | 94.26 | 5.7 | 2-8 |

**AFTER EXTRACTION(Trail-2)**

Weight of Sample(gm) : 476

| IS Sieve Size(mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Specification Limits as per MORTH specification Table 500-10(grading -2) |
|---|---|---|---|---|---|
| 37.5 | 0 | 0 | 0 | 100.0 | 100 |
| 26.5 | 14.8 | 14.8 | 3.11 | 96.9 | 90-100 |
| 19 | 24 | 38.8 | 8.15 | 91.8 | 71-95 |
| 13.2 | 120 | 158.8 | 33.36 | 66.6 | 56-80 |
| 4.75 | 96 | 254.8 | 53.53 | 46.5 | 38-54 |
| 2.36 | 78 | 332.8 | 69.92 | 30.1 | 28-42 |
| 0.3 | 62.4 | 395.2 | 83.03 | 17.0 | 7-21 |
| 0.075 | 52.8 | 448 | 94.12 | 5.9 | 2-8 |

* The results obtained are satisfactory as per standard requirements.

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Certificate No.: TC-5548

## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
## (IS 2386:(Part 1) 1963 (RA2011)

**Lab ID** : **CP-RW-2021-10-06-03** **Date: 06-10-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 04-10-21

**Type of Mix** : DBM (Dense Bituminous Macadam) , Shivarajkumar House Road

**Date of test** : 04-10-21

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 500 | 500 |
| 2 | Weight of the sample After extraction | B | 477 | 476 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 4.6 | 4.8 |
| 4 | Average percentage | % | 4.7 | |

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Lab ID : CP-RW-2021-10-06-03 Date: 06-10-21

**AFTER EXTRACTION(Trail-1)**

Weight of Sample(gm) : 477

| IS Sieve Size(mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Specification Limits as per MORTH specification Table 500-10(grading -2) |
|---|---|---|---|---|---|
| 37.5 | 0 | 0 | 0 | 100.0 | 100 |
| 26.5 | 14.4 | 14.4 | 3.02 | 97.0 | 90-100 |
| 19 | 24 | 38.4 | 8.05 | 91.9 | 71-95 |
| 13.2 | 120 | 158.4 | 33.21 | 66.8 | 56-80 |
| 4.75 | 96 | 254.4 | 53.33 | 46.7 | 38-54 |
| 2.36 | 80 | 334.4 | 70.10 | 29.9 | 28-42 |
| 0.3 | 62.4 | 396.8 | 83.19 | 16.8 | 7-21 |
| 0.075 | 52.8 | 449.6 | 94.26 | 5.7 | 2-8 |

**AFTER EXTRACTION(Trail-2)**

Weight of Sample(gm) : 476

| IS Sieve Size(mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Specification Limits as per MORTH specification Table 500-10(grading -2) |
|---|---|---|---|---|---|
| 37.5 | 0 | 0 | 0 | 100.0 | 100 |
| 26.5 | 14.8 | 14.8 | 3.11 | 96.9 | 90-100 |
| 19 | 24 | 38.8 | 8.15 | 91.8 | 71-95 |
| 13.2 | 120 | 158.8 | 33.36 | 66.6 | 56-80 |
| 4.75 | 96 | 254.8 | 53.53 | 46.5 | 38-54 |
| 2.36 | 78 | 332.8 | 69.92 | 30.1 | 28-42 |
| 0.3 | 62.4 | 395.2 | 83.03 | 17.0 | 7-21 |
| 0.075 | 52.8 | 448 | 94.12 | 5.9 | 2-8 |

* The results obtained are satisfactory as per standard requirements.

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## TEST RESULTS OF GRADATION FOR BC
## IS 2386 (Part I) 1963 (RA 2007 )

**Lab ID** : CP-RW-2021-10-06-03 **Date: 20-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 17-09-21

**Type of Mix** : BC-Plant (Bituminous Concrete)

**Date of test** : 17-09-21

**Oven Dry Weight** : 5000 Grams

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-17(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 89 | 89 | 1.8 | 98.2 | 90-100 |
| 9.5 | 702 | 791 | 15.8 | 84.2 | 70-88 |
| 4.75 | 895 | 1686 | 33.7 | 66.3 | 53-71 |
| 2.36 | 587 | 2273 | 45.5 | 54.5 | 42-58 |
| 1.18 | 492 | 2765 | 55.3 | 44.7 | 34-48 |
| 0.6 | 503 | 3268 | 65.4 | 34.6 | 26-38 |
| 0.3 | 528 | 3796 | 75.9 | 24.1 | 18-28 |
| 0.15 | 458 | 4254 | 85.1 | 14.9 | 12-20 |
| 0.075 | 350 | 4604 | 92.1 | 7.9 | 4-10 |
| PAN | 396 | 5000 | 100 | 0.0 | 0 |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

| | | |
|---|---|---|
| **Lab ID** | : | CP-RW-2021-10-06-03 **Date: 20-09-21** |
| **Project Name** | : | Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113. **Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 |
| **Customer Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 17-09-21 |
| **Type of Mix** | : | BC(Bitumenous Concrete) |
| **Date of test** | : | 17-09-21 |

| | | |
|---|---|---|
| **Type of Binder** | : | 60/70 |
| **% of Binder Used** | : | 5.0% |
| **Weight of Aggregate** | : | 200.0 gm |
| **Weight of Binder** | : | 10.0 gm |
| **Temperature of water bath** | : | 40°C |

| No of test | Retained Stripping Percentage | Stripping Percentage | Average Retained Stripping Percentage | Secified limits as per MORTH specification table 500-8 |
|---|---|---|---|---|
| 1 | 98.5 | 1.5 | 98.3 | Minimum Retained Coating 95% |
| 2 | 98.5 | 1.5 | | |
| 3 | 98.0 | 2.0 | | |

* The results obtained are satisfactory as per standard requirements.

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Certificate No.: TC-5548

# PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-10-06-03** **Date: 20-09-21** |
| **Project Name** | : | Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113. **Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 |
| **Customer Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 17-09-21 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 17-09-21 |

**Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete**

| Property | Test | Result | Specification | Method of Test |
|---|---|---|---|---|
| Partical Shape | Flakiness Index | 12.4 | Combined Flakiness & Elongation Index for BC is Maximum 35% | IS:2386 Part I |
| | Elongation Index | 11.8 | | |
| Strength | Aggregate Impact Value | 22.1 | Maximum 24% | IS:2386 Part IV |
| Specific gravity | Specific gravity | 2.68 | Maximum 2.7 | IS:2386 Part III |
| Water Absorption | Water Absorption | 0.21 | Maximum 2% | IS:2386 Part III |

* The results obtained are satisfactory as per standard requirements.

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TESTS RESULTS ON STABILITY OF MIX

**Lab ID** : **CP-RW-2021-10-06-03** **Date: 20-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 17-09-21

**Type of Mix** : BC (Bituminous Concrete)

**Date of test** : 17-09-21

**The results of the tests conducted on the Bituminous Concrete mix sample are as follow**

| Sl.No | Particulars of observations | TEST 1 | TEST 2 | Secified limits as per MORTH specification table 500-11 |
|---|---|---|---|---|
| 1 | Marshal Stability at 60°C, KN | 11.14 | 11.13 | 10KN(min) |
| 2 | Marshal flow at 60°C, mm | 3.52 | 3.51 | 2-4 |
| 3 | Percent air Voids | 4.82 | 4.83 | 3-5 |
| 4 | Percent Voids in mineral Aggregate(VMA %) | 14.28 | 14.26 | 13-15 |
| 5 | Percent Voids filled with Bitumen(VFB %) | 71.87 | 71.63 | 65-75 |
| 6 | Density, g/cc | 2.25 | 2.26 | – |

* The results obtained are satisfactory as per standard requirements.

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Quality Manager



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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part I) 1963 (RA 2011 )

| | | | |
|---|---|---|---|
| **Lab ID** | : | **CP-RW-2021-10-06-03** | **Date: 25-09-21** |
| **Project Name** | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** | |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 | |
| **Customer Reference** | : | BBMP-EE-BTP-WO-02-2021-22 | |
| **Date of Receipt** | : | 22-09-21 | |
| **Type of Mix** | : | BC (Bituminous Concrete) , Mestri Palya Main Road | |
| **Date of test** | : | 22-09-21 | |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 500 | 500 |
| 2 | Weight of the sample After extraction | B | 471 | 472 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 5.80 | 5.60 |
| 4 | Average percentage | % | 5.7 | |

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-26

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Lab ID : CP-RW-2021-10-06-03 Date: 25-09-21

**AFTER EXTRACTION - Trail-1**

Total Weight of the Sample(gm) : 471

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 4 | 4 | 0.8 | 99.2 | 90-100 |
| 9.5 | 62 | 66 | 14.0 | 86.0 | 70-88 |
| 4.75 | 112 | 178 | 37.8 | 62.2 | 53-71 |
| 2.36 | 88 | 266 | 56.5 | 43.5 | 42-58 |
| 1.18 | 29 | 295 | 62.6 | 37.4 | 34-48 |
| 0.6 | 11 | 306 | 65.0 | 35.0 | 26-38 |
| 0.3 | 46 | 352 | 74.7 | 25.3 | 18-28 |
| 0.15 | 45 | 397 | 84.3 | 15.7 | 12-20 |
| 0.075 | 55 | 452 | 96.0 | 4.0 | 4-10 |

**AFTER EXTRACTION - Trail-2**

Total Weight of the Sample(gm) : 472

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 4 | 4 | 0.8 | 99.2 | 90-100 |
| 9.5 | 62 | 66 | 14.0 | 86.0 | 70-88 |
| 4.75 | 112 | 178 | 37.7 | 62.3 | 53-71 |
| 2.36 | 88 | 266 | 56.4 | 43.6 | 42-58 |
| 1.18 | 29 | 295 | 62.5 | 37.5 | 34-48 |
| 0.6 | 11 | 306 | 64.8 | 35.2 | 26-38 |
| 0.3 | 46 | 352 | 74.6 | 25.4 | 18-28 |
| 0.15 | 45 | 397 | 84.1 | 15.9 | 12-20 |
| 0.075 | 55 | 452 | 95.8 | 4.2 | 4-10 |

* The results obtained are satisfactory as per standard requirements.

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# TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

Date: 08-10-21

**Lab ID** : CP-RW-2021-10-06-03

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 05-10-21

**Type of Mix** : BC (Bituminous Concrete) , Shivarajkumar House Road

**Date of test** : 05-10-21

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 500 | 500 |
| 2 | Weight of the sample After extraction | B | 471 | 472 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 5.80 | 5.60 |
| 4 | Average percentage | % | 5.7 | |

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com



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**Lab ID** : **CP-RW-2021-10-06-03** **Date: 08-10-21**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 471

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 4 | 4 | 0.8 | 99.2 | 90-100 |
| 9.5 | 62 | 66 | 14.0 | 86.0 | 70-88 |
| 4.75 | 112 | 178 | 37.8 | 62.2 | 53-71 |
| 2.36 | 88 | 266 | 56.5 | 43.5 | 42-58 |
| 1.18 | 29 | 295 | 62.6 | 37.4 | 34-48 |
| 0.6 | 11 | 306 | 65.0 | 35.0 | 26-38 |
| 0.3 | 46 | 352 | 74.7 | 25.3 | 18-28 |
| 0.15 | 45 | 397 | 84.3 | 15.7 | 12-20 |
| 0.075 | 55 | 452 | 96.0 | 4.0 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 472

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 4 | 4 | 0.8 | 99.2 | 90-100 |
| 9.5 | 62 | 66 | 14.0 | 86.0 | 70-88 |
| 4.75 | 112 | 178 | 37.7 | 62.3 | 53-71 |
| 2.36 | 88 | 266 | 56.4 | 43.6 | 42-58 |
| 1.18 | 29 | 295 | 62.5 | 37.5 | 34-48 |
| 0.6 | 11 | 306 | 64.8 | 35.2 | 26-38 |
| 0.3 | 46 | 352 | 74.6 | 25.4 | 18-28 |
| 0.15 | 45 | 397 | 84.1 | 15.9 | 12-20 |
| 0.075 | 55 | 452 | 95.8 | 4.2 | 4-10 |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
Quality Manager



M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT ON BITUMEN

**Lab ID** : **CP-RW-2021-10-06-03** **Date: 09-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111.
Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 07-09-21

**Sample Type** : Bitumen

**Reference to BIS codes** : IS: 1201-1220(1978) (Reaffirmed-2004)

**Date of test** : 07-09-21

## Test Results

| Sl.no | Name of Test | Result | Requirements as per IS:73-2013 |
|---|---|---|---|
| 1 | Penetration at 25°C , in 1/10th mm | **64** | 60 to 70 |
| 2 | Softening Point, °C | **51.2** | Min. 40°C |
| 3 | Ductility, cm | **98** | Min. 75cm |
| 4 | Flash point, °C | **245** | Min. 220°C |
| | Fire point, °C | **272** | |

* The results obtained are satisfactory as per standard requirements.

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು

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## DETERMINATION OF RATE OF SPREAD TACK COAT

**Lab ID** : **CP-RW-2021-10-06-03** **Date: 18-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 17-09-21

**Type of Mix** : Tack coat

**Date of test** : 17-09-21

| Sl.No | Determination | Unit | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Size of Plate (mxm) | Mt | 0.30 x .30 | 0.30 x .30 |
| 2 | Area of Plate (a) | Sq.mtr | 0.09 | 0.09 |
| 3 | Initial Wt of empty Plate (b) | Kg | 0.78 | 0.748 |
| 4 | Final weight of plate after application of tack Coat ( c) | Kg | 0.803 | 0.771 |
| 5 | Weight of tack Coat (d=c-b) | Kg | 0.023 | 0.023 |
| 6 | Rate of spread of tack coat | Kg/sq.m | 0.256 | 0.256 |
| 7 | Average | Kg/sq.m | 0.256 | |
| 8 | Specified Limit | Kg/sq.m | 0.250 Kg/sq.m | |

* The results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

## DETERMINATION OF RATE OF SPREAD TACK COAT

**Lab ID** : **CP-RW-2021-10-06-03** **Date: 06-10-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 05-10-21

**Type of Mix** : Tack coat

**Date of test** : 05-10-21

| Sl.No | Determination | Unit | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Size of Plate (mxm) | Mt | 0.30 x .30 | 0.30 x .30 |
| 2 | Area of Plate (a) | Sq.mtr | 0.09 | 0.09 |
| 3 | Initial Wt of empty Plate (b) | Kg | 0.78 | 0.748 |
| 4 | Final weight of plate after application of tack Coat ( c) | Kg | 0.803 | 0.771 |
| 5 | Weight of tack Coat (d=c-b) | Kg | 0.023 | 0.023 |
| 6 | Rate of spread of tack coat | Kg/sq.m | 0.256 | 0.256 |
| 7 | Average | Kg/sq.m | 0.256 | |
| 8 | Specified Limit | Kg/sq.m | 0.250 Kg/sq.m | |

* The results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

**Lab ID** : CP-2021-10-06-03 **Date: 07-06-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111 Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 04-06-21

**Sample Type** : Birla Super 53grade

**Reference to BIS codes** : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,
IS 4031 (Part 1,2 3,4,5, 6,11):1988
IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5
IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6
IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5
IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6

**Date of test** : 05-06-21

**Environmental Conditions during test** : Temperature: 26°C
Humidity: 72%

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | Fineness by dry sieving (%) | 1.85 | – |
| 2 | Finess by Air permeablity method ($m^2$/kg,Min) | 348.6 | 225$m^2$/kg, Min |
| 3 | Density (gm/cc) | 3.15 | – |
| 4 | Standard Consistency (%) | 28.5% | Not specified |
| 5 | Initial Setting time | 135 minutes | Not less than 30 minutes |
| 6 | Final Setting time | 245 minutes | Not more than 600 minutes |
| 7 | Soundness (Le Chatelier's Method) | 1.5mm | Not more than 10 mm |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Date: 03-07-21

| | | |
|---|---|---|
| **Lab ID** | : | CP-2021-10-06-03 |
| **Project Name** | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 |
| **Customer's Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 04-06-21 |
| **Sample Type** | : | Birla Super 53grade |
| **Reference to BIS codes** | : | IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,<br>IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5<br>IS 4031 Part 6, Determination of Compressive Strength, Clause 6 |
| **Date of test** | : | 05-06-21 |
| **Environmental Conditions during test** | : | Temperature: 26°C<br>Humidity: 72% |

**Compressive Strength**

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | 3 Days | 28.5N/mm$^2$ | Not less than 27 N/mm$^2$ |
| 2 | 7 Days | 39.0N/mm$^2$ | Not less than 37 N/mm$^2$ |
| 3 | 28 Days | 58.5N/mm$^2$ | Not less than 53 N/mm$^2$ |

• The results obtained are satisfactory as per standard requirements.

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## TEST REPORT ON COARSE AGGREGATES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-10-06-03** **Date: 07-06-21** |
| **Project Name** | : | Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br><br>**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 |
| **Customer's Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 04-06-21 |
| **Sample Type** | : | 40mm down size coarse aggregate |
| **Reference to BIS codes** | : | IS: 383:2016 (Specification for Coarse and fine Aggregates )<br>IS: 2386 :1963(Part - 1,3,4) RA2011<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption<br>IS 2386 Part 4: Mechanical Properties |
| **Date of test** | : | 04-06-21 |

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:**

**Total weight taken** : **15000** **grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 80 mm | 0 | 0 | 0.0 | 100 | 100 |
| 2 | 40 mm | 215 | 215 | 1.4 | 98.6 | 90-100 |
| 3 | 20 mm | 7455 | 7670 | 51.1 | 48.9 | 30-70 |
| 4 | 10 mm | 4266 | 11936 | 79.6 | 20.4 | 10-35 |
| 5 | 4.75 mm | 2844 | 14780 | 98.5 | 1.5 | 0-5 |
| 6 | Pan | 220 | 15000 | 100.0 | 0 | --- |



M : 9972924526 | Tel : +91 80 23444801 | e : rachan6630@yahoo.co.in, civilproexperts@gmail.com

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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-10-06-03** **Date: 07-06-21**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 11.9 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 12.3 | |
| 3 | Specific Gravity | 2.64 | _ |
| 4 | Bulk Density(Loose) (Kg/l) | 1.41 | _ |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.47 | _ |
| 6 | Water Absorption(%) | 0.23 | _ |

* The results obtained are satisfactory as per standard requirements.

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## TEST REPORT ON COARSE AGGREGATES

| | | |
|---|---|---|
| Lab ID | : | CP-2021-10-06-03 **Date: 07-06-21** |
| Project Name | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| Agency | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 |
| Customer Reference | : | BBMP-EE-BTP-WO-02-2021-22 |
| Date of Receipt | : | 04-06-21 |
| Sample Type/ Size | : | 20mm down size coarse aggregate |
| Reference to BIS codes | : | IS: 383:2016 (Specification for Coarse and fine Aggregates )<br>IS: 2386 :1963(Part - 1,3,4) RA2011<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption<br>IS 2386 Part 4: Mechanical Properties |
| Date of test | : | 04-06-21 |

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:**

**Total weight taken : 5000 grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 40 mm | 0 | 0 | 0 | 100 | 100 |
| 2 | 20 mm | 225 | 225 | 4.5 | 95.5 | 90-100 |
| 3 | 10 mm | 2845 | 3070 | 61.4 | 38.6 | 25-55 |
| 4 | 4.75 mm | 1745 | 4815 | 96.3 | 3.7 | 0-10 |
| 5 | Pan | 185 | 5000 | 100 | 0 | – |



M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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## TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2021-10-06-03 Date: 07-06-21

### PHYSICAL PROPERTIES

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 13.2 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 10.1 | |
| 3 | Specific Gravity | 2.68 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.43 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.49 | – |
| 6 | Water Absorption(%) | 0.23 | – |
| 7 | Aggregate crushing Value(%) | 22.9 | Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface. |
| 8 | Aggregate Impact Value(%) | 23.7 | 30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface. |

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signature
Quality Manager


*End of Report*

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com
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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : CP-2021-10-06-03 **Date: 07-06-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 04-06-21

**Sample Type** : Fine Aggregate

**Reference to BIS codes** : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

**Date of test** : 04-06-21

**Total weight taken** : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Grading Zone I | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1 | 10 mm | 0 | 0 | 0.0 | 100.0 | 100 | 100 | 100 | 100 |
| 2 | 4.75 mm | 27 | 27 | 2.7 | 97.3 | 90-100 | 90-100 | 90-100 | 95-100 |
| 3 | 2.36 mm | 55 | 82 | 8.2 | 91.8 | 60-95 | 75-100 | 85-100 | 95-100 |
| 4 | 1.18 mm | 239 | 321 | 32.1 | 67.9 | 30-70 | 55-90 | 75-100 | 90-100 |
| 5 | 600 micron | 205 | 526 | 52.6 | 47.4 | 15-34 | 35-59 | 60-79 | 80-100 |
| 6 | 300 micron | 203 | 729 | 72.9 | 27.1 | 5-20 | 8-30 | 12-40 | 15-50 |
| 7 | 150 micron | 191 | 920 | 92.0 | 8.0 | 0-10 | 0-10 | 0-10 | 0-15 |
| 8 | Pan | 80 | 1000 | 100.0 | 0.0 | --- | --- | --- | --- |

**Result :The tested Sample Conforms to Grading Zone II**



M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2021-10-06-03** **Date: 07-06-21**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS 383:2016 |
|---|---|---|---|
| 1 | Water Absorption(%) | 1.5 | – |
| 2 | Specific Gravity | 2.59 | – |
| 3 | Material finer than 75 micron(%) | 6.9 | Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10% |

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager


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## TEST RESULTS OF STEEL

**Lab ID** : **CP-2021-10-06-03** **Date: 01-07-21**

**Project Name** :

Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuzure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 30-06-21

**Sample Type** : Sunvik

**Reference to BIS codes** : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.

**Date of test:** : 30-06-21

| Sl.No | Identification of sample | Grade of the sample | Diameter of the steel bar | Weight of the sample | Yield stress | Tensile strength | Elongation | Bend test | Rebend test |
|---|---|---|---|---|---|---|---|---|---|
| | | | (mm) | (kg/m) | (N/mm2) | (N/mm2) | (%) | | |
| 1 | Sunvik | Fe500 | 8 | 0.391 | 512 | 652 | 20.0% | Satisfactory | Satisfactory |
| 2 | Sunvik | Fe500 | 10 | 0.616 | 528 | 672 | 20.0% | Satisfactory | Satisfactory |
| 4 | Sunvik | Fe500 | 16 | 1.581 | 572 | 674 | 19.0% | Satisfactory | Satisfactory |

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager


*End of Report*

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF PRECAST COVER SLAB

**Lab ID** : **CP-2021-10-06-03** **Date: 02-08-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 29-07-21

**Sample Type /Size** : Precast Cover Slab(100mm)

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete

**Date of test** : 29/07/2021

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (kg) | (Sq.mm) | (KN) | ($N/mm^2$) | ($N/mm^2$) | ($N/mm^2$) |
| 1 | Cover Slab-1 | 75.51 | 100.48 | 1.116 | 4477 | 94.9 | 21.2 | 19.7 | 24.6 |
| 2 | Cover Slab-2 | 75.49 | 100.52 | 1.122 | 4475 | 94.3 | 21.1 | 19.6 | 24.5 |
| 3 | Cover Slab-3 | 75.50 | 100.51 | 1.118 | 4476 | 95.5 | 21.3 | 19.8 | 24.8 |

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager



****End of Report****

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF PRECAST COVER SLAB

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-10-06-03** **Date: 02-08-21** |
| **Project Name** | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 |
| **Customer's Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 29-07-21 |
| **Sample Type /Size** | : | Precast Cover Slab(100mm) |
| **Reference to BIS codes** | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete |
| **Date of test** | : | 29/07/2021 |

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (kg) | (Sq.mm) | (KN) | ($N/mm^2$) | ($N/mm^2$) | ($N/mm^2$) |
| 1 | Cover Slab-1 | 200.51 | 250.48 | 3.116 | 31570 | 535.9 | 17.0 | 15.8 | 19.7 |
| 2 | Cover Slab-2 | 200.49 | 250.52 | 3.122 | 31564 | 540.3 | 17.1 | 15.9 | 19.9 |
| 3 | Cover Slab-3 | 200.50 | 250.51 | 3.118 | 31567 | 546.5 | 17.3 | 16.1 | 20.1 |

* The results obtained are satisfactory as per standard requirements.

ಸಹಾಯಕ ಅಧಿಯಂತರರು
ಬಿ.ಬಿ.ಎಂ.ಪಿ ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-26

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FOR CIVIL Pro.
R KARTHIK RECHAN
Authorized Signatory
Quality Manager


****End of Report****

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com
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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 04/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-07-21

**Customer ID** : Drain Bottom Slab Concrete - 4th Cross Connecting Road -1

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 04/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 04/08/2021 | 151.79 X 149.18 X 149.88 | 22644 | **8.538** | 409.3 | 18.1 | 18.4 |
| 2 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 04/08/2021 | 149.01 X 149.21 X 150.59 | 22233 | **8.329** | 421.9 | 19.0 | |
| 3 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 04/08/2021 | 151.54 X 149.44 X 150.88 | 22646 | **8.677** | 409.5 | 18.1 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 25/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-07-21

**Customer ID** : Drain Bottom Slab Concrete - 4th Cross Connecting Road -1

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 25/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 25/08/2021 | 150.19 X 151.07 X 150.54 | 22689 | 8.758 | 534.7 | 23.6 | 23.4 |
| 2 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 25/08/2021 | 149.22 X 149.89 X 151.46 | 22366 | 8.905 | 513.1 | 22.9 | |
| 3 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 25/08/2021 | 151.39 X 150.75 X 149.35 | 22821 | 8.551 | 541.5 | 23.7 | |

* The results obtained are satisfactory as per standard requirements.

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager


****End of Report****

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com
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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 04/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-07-21

**Customer ID** : Drain Bottom Slab Concrete - 4th Cross Connecting Road 2

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 04/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 04/08/2021 | 149.93 X 151.00 X 150.20 | 22640 | 8.538 | 423.5 | 18.7 | 18.6 |
| 2 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 04/08/2021 | 151.87 X 150.71 X 150.41 | 22889 | 8.329 | 434.8 | 19.0 | |
| 3 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 04/08/2021 | 150.83 X 151.14 X 149.07 | 22797 | 8.677 | 411.7 | 18.1 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 25/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-07-21

**Customer ID** : Drain Bottom Slab Concrete - 4th Cross Connecting Road 2

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 25/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 25/08/2021 | 151.09 X 150.12 X 149.84 | 22681 | 8.758 | 531.3 | 23.4 | 23.0 |
| 2 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 25/08/2021 | 151.69 X 150.93 X 150.38 | 22895 | 8.905 | 509.0 | 22.2 | |
| 3 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 25/08/2021 | 149.79 X 149.07 X 150.41 | 22329 | 8.551 | 524.5 | 23.5 | |

* The results obtained are satisfactory as per standard requirements.

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager



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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : CP-2021-10-06-03 **Date: 19/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 15-08-21

**Customer ID** : Drain Side wall Concrete - 4th Cross Connecting Road -1

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 19/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength (N/mm²) | Average Compressive Strength (N/mm²) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side wall Concrete | M20 | 12/08/2021 | 19/08/2021 | 151.45 X 151.94 X 151.34 | 23011 | 8.538 | 423.0 | 18.4 | 18.5 |
| 2 | Drain Side wall Concrete | M20 | 12/08/2021 | 19/08/2021 | 151.61 X 151.07 X 150.26 | 22905 | 8.329 | 432.6 | 18.9 | |
| 3 | Drain Side wall Concrete | M20 | 12/08/2021 | 19/08/2021 | 149.92 X 149.38 X 150.21 | 22395 | 8.677 | 405.8 | 18.1 | |

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager


****End of Report****

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 09/09/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 15-08-21

**Customer ID** : Drain Side wall Concrete - 4th Cross Connecting Road -1

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 09/09/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side wall Concrete | M20 | 12/08/2021 | 09/09/2021 | 151.54 X 149.93 X 150.64 | 22721 | 8.758 | 537.8 | 23.7 | 23.0 |
| 2 | Drain Side wall Concrete | M20 | 12/08/2021 | 09/09/2021 | 150.35 X 151.29 X 150.14 | 22747 | 8.905 | 501.3 | 22.0 | |
| 3 | Drain Side wall Concrete | M20 | 12/08/2021 | 09/09/2021 | 151.26 X 149.55 X 149.04 | 22620 | 8.551 | 526.8 | 23.3 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 19/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 15-08-21

**Customer ID** : Drain Side wall Concrete - 4th Cross Connecting Road 2

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 19/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side wall Concrete | M20 | 12/08/2021 | 19/08/2021 | 151.90 X 149.79 X 150.61 | 22754 | 8.538 | 426.2 | 18.7 | 18.6 |
| 2 | Drain Side wall Concrete | M20 | 12/08/2021 | 19/08/2021 | 149.95 X 149.33 X 151.74 | 22392 | 8.329 | 421.1 | 18.8 | |
| 3 | Drain Side wall Concrete | M20 | 12/08/2021 | 19/08/2021 | 150.79 X 150.36 X 150.93 | 22673 | 8.677 | 413.5 | 18.2 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 09/09/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 15-08-21

**Customer ID** : Drain Side wall Concrete - 4th Cross Connecting Road 2

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 09/09/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side wall Concrete | M20 | 12/08/2021 | 09/09/2021 | 150.71 X 149.85 X 151.90 | 22584 | 8.758 | 531.6 | 23.5 | 23.3 |
| 2 | Drain Side wall Concrete | M20 | 12/08/2021 | 09/09/2021 | 151.91 X 150.84 X 151.43 | 22914 | 8.905 | 521.2 | 22.7 | |
| 3 | Drain Side wall Concrete | M20 | 12/08/2021 | 09/09/2021 | 150.46 X 151.27 X 151.42 | 22761 | 8.551 | 535.4 | 23.5 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 06/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 02-08-21

**Customer ID** : Culvert Bottom Raft Concrete -Afzle layout (Corian Church Road )

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 06/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Culvert Bottom Raft Concrete | M20 | 30/07/2021 | 06/08/2021 | 150.99 X 150.61 X 151.18 | 22740 | **8.538** | 431.5 | 19.0 | 18.9 |
| 2 | Culvert Bottom Raft Concrete | M20 | 30/07/2021 | 06/08/2021 | 150.44 X 151.81 X 149.50 | 22839 | **8.329** | 427.3 | 18.7 | |
| 3 | Culvert Bottom Raft Concrete | M20 | 30/07/2021 | 06/08/2021 | 151.43 X 150.32 X 149.19 | 22763 | **8.677** | 431.6 | 19.0 | |

* The results obtained are satisfactory as per standard requirements.

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 27/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Rani and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 02-08-21

**Customer ID** : Culvert Bottom Raft Concrete -Afzle layout (Corian Church Road )

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 27/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Culvert Bottom Raft Concrete | M20 | 30/07/2021 | 27/08/2021 | 151.51 X 151.27 X 151.09 | 22920 | 8.758 | 530.4 | 23.1 | 22.9 |
| 2 | Culvert Bottom Raft Concrete | M20 | 30/07/2021 | 27/08/2021 | 150.32 X 151.66 X 150.04 | 22798 | 8.905 | 508.2 | 22.3 | |
| 3 | Culvert Bottom Raft Concrete | M20 | 30/07/2021 | 27/08/2021 | 149.73 X 149.22 X 150.28 | 22343 | 8.551 | 522.3 | 23.4 | |

* The results obtained are satisfactory as per standard requirements.

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Quality Manager


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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 25/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 20-08-21

**Customer ID** : Culvert Side Wall Concrete -Afzle layout (Corian Church Road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 25/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Culvert Side wall Concrete | M20 | 18/08/2021 | 25/08/2021 | 150.71 X 149.60 X 150.83 | 22546 | **8.538** | 415.3 | 18.4 | 18.4 |
| 2 | Culvert Side wall Concrete | M20 | 18/08/2021 | 25/08/2021 | 149.21 X 151.08 X 149.22 | 22542 | **8.329** | 415.6 | 18.4 | |
| 3 | Culvert Side wall Concrete | M20 | 18/08/2021 | 25/08/2021 | 151.66 X 149.40 X 149.67 | 22659 | **8.677** | 418.0 | 18.4 | |

* The results obtained are satisfactory as per standard requirements.

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ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು

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Authorized Signatory
Quality Manager



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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 15/09/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 20-08-21

**Customer ID** : Culvert Side Wall Concrete -Afzle layout (Corian Church Road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 15/09/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Culvert Side wall Concrete | M20 | 18/08/2021 | 15/09/2021 | 151.21 X 151.30 X 150.64 | 22879 | 8.758 | 545.6 | 23.8 | 23.3 |
| 2 | Culvert Side wall Concrete | M20 | 18/08/2021 | 15/09/2021 | 149.84 X 149.51 X 150.94 | 22403 | 8.905 | 500.5 | 22.3 | |
| 3 | Culvert Side wall Concrete | M20 | 18/08/2021 | 15/09/2021 | 149.38 X 150.50 X 149.31 | 22482 | 8.551 | 531.0 | 23.6 | |

* The results obtained are satisfactory as per standard requirements.

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com
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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 04/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-07-21

**Customer ID** : Drain Bottom Slab Concrete - From West Side to East Side

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 04/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 04/08/2021 | 150.12 X 149.62 X 149.28 | 22461 | **8.538** | 412.9 | 18.4 | 18.5 |
| 2 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 04/08/2021 | 151.94 X 150.42 X 150.99 | 22856 | **8.329** | 430.8 | 18.9 | |
| 3 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 04/08/2021 | 149.66 X 150.25 X 151.17 | 22487 | **8.677** | 412.9 | 18.4 | |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 25/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-07-21

**Customer ID** : Drain Bottom Slab Concrete - From West Side to East Side

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 25/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 25/08/2021 | 150.45 X 149.24 X 150.07 | 22453 | 8.758 | 530.0 | 23.6 | 23.4 |
| 2 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 25/08/2021 | 149.23 X 150.17 X 151.32 | 22410 | 8.905 | 514.5 | 23.0 | |
| 3 | Drain Bottom Slab Concrete | M20 | 28/07/2021 | 25/08/2021 | 150.96 X 150.31 X 150.71 | 22691 | 8.551 | 537.0 | 23.7 | |

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager


****End of Report****

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com
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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 23/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 19-08-21

**Customer ID** : Drain Side wall Concrete - From East Side To West Side

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 23/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side wall Concrete | M20 | 16/08/2021 | 23/08/2021 | 150.28 X 151.91 X 149.56 | 22829 | **8.538** | 421.7 | 18.5 | 18.7 |
| 2 | Drain Side wall Concrete | M20 | 16/08/2021 | 23/08/2021 | 149.30 X 150.04 X 149.54 | 22401 | **8.329** | 419.4 | 18.7 | |
| 3 | Drain Side wall Concrete | M20 | 16/08/2021 | 23/08/2021 | 149.36 X 151.95 X 151.66 | 22696 | **8.677** | 430.7 | 19.0 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03**

**Date: 13/11/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 18-10-21

**Customer ID** : Cement Concrete Pavement, (ANJANADRI BADAVANE -Cross Road-2)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M30 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 13/11/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M30 | 16/10/2021 | 13/11/2021 | 149.24 X 149.09 X 149.09 | 22251 | 8.141 | 744.2 | 33.4 | 33.0 |
| 2 | Cement Concrete Pavement | M30 | 16/10/2021 | 13/11/2021 | 150.90 X 150.33 X 150.82 | 22683 | 8.908 | 729.3 | 32.2 | |
| 3 | Cement Concrete Pavement | M30 | 16/10/2021 | 13/11/2021 | 151.25 X 150.66 X 151.87 | 22787 | 8.973 | 761.0 | 33.4 | |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
Quality Manager



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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST RESULTS OF GRADATION FOR WMM

**Lab ID** : **CP-RW-2021-10-06-03** **Date: 22-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111.
Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 20-09-21

**Type of Mix** : WMM ( Wet Mix Macadam)

**Date of test** : 20-09-21

**Oven Dry Weight** : 11000 Grams

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 315 | 315 | 2.9 | 97.1 | 95-100 |
| 22.4 | 2259 | 2574 | 23.4 | 76.6 | 60-80 |
| 11.2 | 2179 | 4753 | 43.2 | 56.8 | 40-60 |
| 4.75 | 2251 | 7004 | 63.7 | 36.3 | 25-40 |
| 2.36 | 1621 | 8625 | 78.4 | 21.6 | 15-30 |
| 0.6 | 623 | 9248 | 84.1 | 15.9 | 8-22 |
| 0.075 | 1338 | 10586 | 96.2 | 3.8 | 0-5 |

* The results obtained are satisfactory as per standard requirements.

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager



M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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Certificate No.: TC-5548

# TEST REPORT OF AGGEGRATE IMPACT VALUE

## IS: 2386 Part IV

| | | | |
|---|---|---|---|
| **Lab ID** | : | **CP-RW-2021-10-06-03** | **Date: 22-09-21** |
| **Project Name** | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br><br>**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division** | |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 | |
| **Customer Reference** | : | BBMP-EE-BTP-WO-02-2021-22 | |
| **Date of Receipt** | : | 20-09-21 | |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) | |
| **Date of test** | : | 20-09-21 | |

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 300.2 | 300.2 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 73.9 | 74.0 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 225.9 | 225.8 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 0.4 | 0.4 |
| 5 | Aggregate impact value | (B/A)*100 | 24.6 | 24.7 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 24.6 | |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
Quality Manager



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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

**Lab ID** : CP-RW-2021-10-06-03 **Date: 22-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 20-09-21

**Type of Mix** : Coarse Aggregate for WMM ( Wet Mix Macadam)

**Date of test** : 20-09-21

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 12.8% | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 12.5% | |
| Combined Flakiness and Elongation Index for WMM | 25.3% | |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
Quality Manager



M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 14/10/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 09-10-21

**Customer ID** : Cement Concrete Pavement - Afzle layout (1st Cross road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M30 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 14/10/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M30 | 07/10/2021 | 14/10/2021 | 149.31 X 150.28 X 150.80 | 22439 | 8.758 | 619.3 | 27.6 | 27.8 |
| 2 | Cement Concrete Pavement | M30 | 07/10/2021 | 14/10/2021 | 149.64 X 151.96 X 149.11 | 22740 | 8.441 | 634.7 | 27.9 | |
| 3 | Cement Concrete Pavement | M30 | 07/10/2021 | 14/10/2021 | 152.00 X 151.94 X 151.64 | 23094 | 8.158 | 645.1 | 27.9 | |

* The results obtained are satisfactory as per standard requirements

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-06-03** **Date: 04/11/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Saraipalya, Bharathnagar and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 09-10-21

**Customer ID** : Cement Concrete Pavement - Afzle layout (1st Cross road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M30 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 04/11/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Cement Concrete Pavement | M30 | 07/10/2021 | 04/11/2021 | 150.63 X 151.56 X 150.84 | 22828 | 8.141 | 771.4 | 33.8 | 33.2 |
| 2 | Cement Concrete Pavement | M30 | 07/10/2021 | 04/11/2021 | 150.70 X 150.43 X 149.04 | 22669 | 8.908 | 741.4 | 32.7 | |
| 3 | Cement Concrete Pavement | M30 | 07/10/2021 | 04/11/2021 | 151.54 X 150.70 X 151.89 | 22838 | 8.973 | 755.4 | 33.1 | |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
Quality Manager


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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

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